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GORDIACEA FROM THE COPE COLLECTION.

THOS. H. MONTGOMERY, JR.

At his death Prof. Edward D. Cope left to the Philadelphia Academy of Natural Sciences, among other alcoholic collections, a few specimens of Gordiacea. Among them is a new species, while the others are interesting from the standpoint of geographical distribution.

1. *Gordius aquaticus* (Linn). One ♂ from Haines Falls, Catskills, New York, U. S. A. This specimen is a typical one of this species, and is particularly interesting as coming from such an eastern locality of the United States; previous specimens I have described only from Mexico and California, while all others of the species seen by me from the eastern part of the continent belonged to the following subspecies:

2. *G. aquaticus robustus* (Leidy). Three ♂♂ from Austin, Texas, the first record from this State.

3. *Paragordius varius* (Leidy). One ♂ from the same locality.

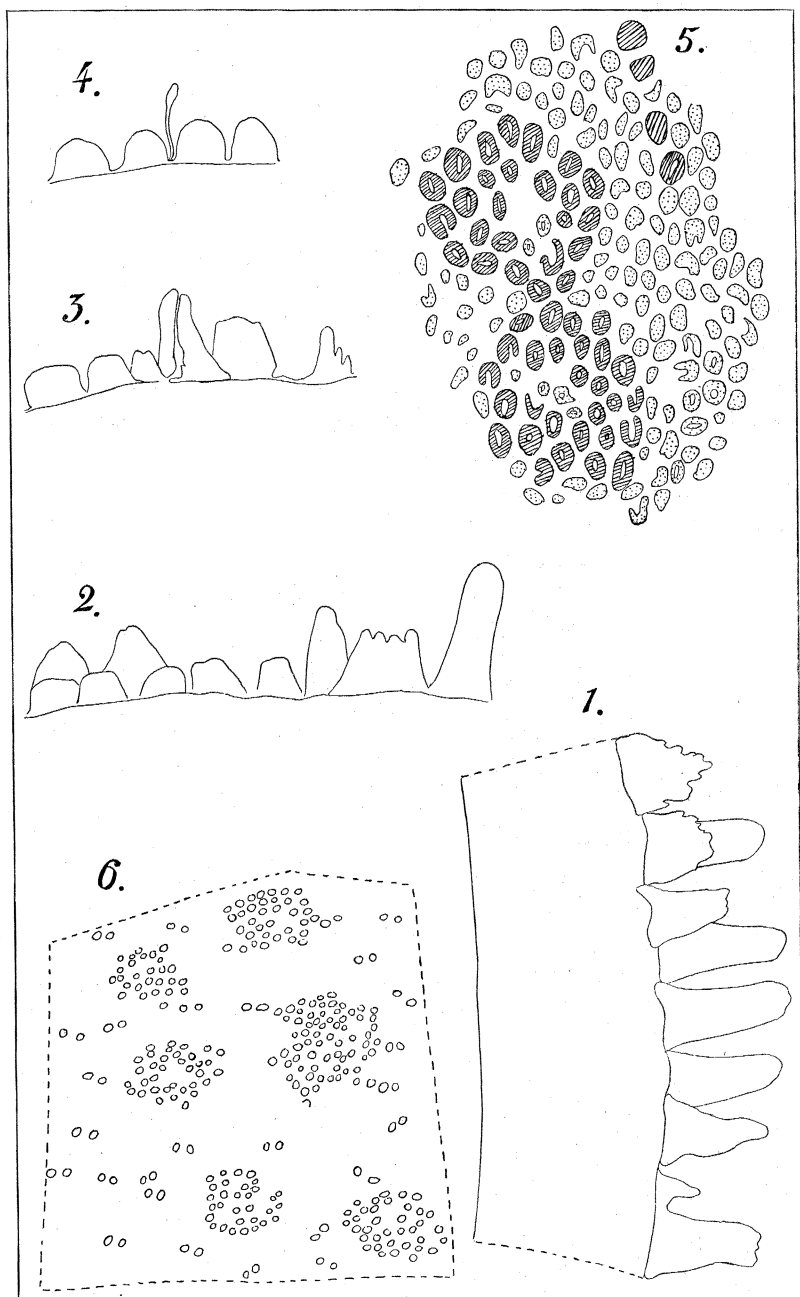
4. *Chordodes occidentalis* (Montg.). One ♂ from Texas, taken from the abdomen of a large grasshopper.

5. *C. Cameranonis*, n. sp. One ♂ from the West Coast, "Mazatlan or Panama." This type is in the collection of the Philadelphia Academy of Natural Sciences.

Form. — Body dorso-ventrally flattened, with slight median grooves. Anterior third of the body gradually tapering to a point, but the extreme end of the head truncated. Posterior end also attenuated, but less so than head; rounded terminally. A post-cloacal ventral groove is in the males of most species of the genus.

Cuticle. — Three main kinds of cuticular processes may be distinguished:

(1) The most abundant are low tubercles, which, on surface view (Fig. 5), appear more or less rounded or oval in outline, less frequently notched at one side, or sickle-shaped. While on



Figs. 1-4, portions of transverse sections of the cuticle, the cuticular processes shown only in outline; in Fig. 1 the outline of the fibrous cuticle is shown. (Zeiss homog. 1 mm. $\frac{1}{3}$, oc. 2.) Fig. 5, surface view of a portion of the cuticle, showing both tubercles and papillae (the latter darker). (Oc. 4, obj. C.) Fig. 6, surface view of the cuticle, seen in water, to show only the arrangement of the groups of papillae, the tubercles not being shown. (Obj. A, oc. 4.)

surface view they appear to be more or less clearly separated from one another, on cross-section they are seen to be connected at their bases. On section (Figs. 2-4) most of them appear of a conical or rounded conical outline, with rounded or flattened smooth summits; but in some the summits are notched or toothed, and this is especially the case with those tubercles found on the margins of the papillar groups next to be described.

(2) Papillae, which on surface view of the cuticle (Fig. 5) appear darker than the tubercles just described, owing to their greater height. On the surface of the cuticle they are arranged in groups of two kinds (Fig. 6, where only these groups of papillae are shown, and none of the tubercles; and Fig. 5, where both tubercles and papillae are shown): (*a*) In larger groups consisting of from about twenty-five to fifty papillae (usually about forty) each; and (*b*) in pairs, the pairs being much more numerous than the larger groups. The line joining the two papillae of a pair lies in the transverse axis of the body, and not infrequently two or three pairs of papillae may lie in such close juxtaposition as to form transverse rows of four or six papillae each. In the larger groups of papillae the center of each group is occupied by papillae of less height than those on the periphery, or is devoid of papillae. These papillae may be readily recognized on surface view, in addition to their dark coloring, by the clearer central portion, which is often narrow and slit-like (Fig. 5).

Transverse sections of the cuticle (Figs. 1-4) show these papillae in two forms. First, there are long, comparatively slender, finger-shaped papillae, with smooth outlines and rounded summits; some of these attain a height nearly equal to the transverse diameter of the underlying fibrous portion of the cuticle. And, secondly, there are papillae of greater diameter at the base, but less height, which lie among the former kind, and may be distinguished by the irregular notching and tuberculation of their summits and sides. The clear central portion of these papillae seen on surface view is shown on cross-section to be a clear axial core running the whole length of the papilla and representing possibly a pore canal.

On none of these papillae have I been able to find terminal

hairs, such as are so frequently found in the larger papillae of many species of the genus; no hairs were to be seen on the cuticle on surface view examined in water and in balsam, nor yet on cross-sections examined with the one-twelfth immersion lens of Zeiss.

(3) Hyaline, club-shaped, delicate processes scattered sparingly over the cuticle (Fig. 4).

Color. — Black, head rufous-brown.

Dimensions. — Length, 425 μ m.; greatest diameter, 2 mm. The structure of the genital organs showed this specimen to be sexually mature.

Comparisons. — This appears to be a well-marked species. In the arrangement of the papillae it bears some resemblance to *C. festae* Camerano, but differs from the latter in having no fine hairs (“corti e fini prolungamenti trasparenti”) on the summits of the papillae and also in having no large, transparent, recurved hooks on the surface of the cuticle (*cf.* Camerano, “Monografia dei Gordii,” *Accad. Real. Sci. di Torino*, 1897, p. 386, Taf. III, Fig. 38).

It is a pleasure to me to name this species in honor of Prof. Lorenzo Camerano, of Turin, who has given such an able systematic monograph of the group.

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